

CLAIMS

We claim:

1. A method of compensating for wavelength drift in an optoelectronic assembly comprising:

identifying two or more time intervals;

identifying a corresponding optical signal wavelength for each of the two or more time intervals;

calculating an average wavelength drift based at least in part on a differential wavelength value detected between the identified corresponding optical signal wavelengths over the identified two or more time intervals; and

adjusting a temperature component in the optoelectronic assembly so that a transmitted optical signal has a resultant wavelength that is within a range of a target wavelength.

2. The method as recited in claim 1, wherein the average wavelength drift of the optoelectronic assembly over the defined operational lifetime comprises one of a red shift and a blue shift.

3. The method as recited in claim 1, wherein the range of a target wavelength is within 100 picometers of the target wavelength.

4. The method as recited in claim 1, wherein the temperature component is a thermoelectric cooler.

5. The method as recited in claim 1, wherein the optoelectronic assembly is an optical transceiver including a transmitter optical sub-assembly.

6. The method as recited in claim 1, wherein the identified two or more time intervals sampled from at least one of a second, a minute, an hour, a day, a week, a month, and a year time frame.

7. The method as recited in claim 6, wherein data representing the identified two or more time intervals and the identified corresponding optical signal wavelength are stored in at least one of a volatile memory, and a non-volatile memory that is accessed by a microprocessor.

8. The method as recited in claim 7, wherein the wavelength data for the corresponding optical signal wavelengths are measured at a wave meter, the wave meter then forwarding the measured wavelength data to the microprocessor.

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9. An optoelectronic assembly, comprising:
- one or more optical subassemblies;
 - a thermoelectric cooler coupled with at least one of the one or more optical subassemblies; and
 - a microprocessor having instructions that, when executed, perform the method comprising:
 - identifying two or more time intervals;
 - identifying a corresponding optical signal wavelength for each of the one or more time intervals;
 - calculating an average wavelength drift based at least in part on a differential wavelength value detected between the identified corresponding optical signal wavelengths over the identified two or more time intervals;
 - and
 - adjusting the thermoelectric cooler in the optoelectronic assembly so that an optical signal passing through the at least one of the one or more optical subassemblies has a resultant wavelength that is within an appropriate range of a target wavelength.
10. The optoelectronic assembly as recited in claim 9, wherein the at least one of the one or more optical subassemblies comprises a transmitter optical subassembly.
11. The optoelectronic assembly as recited in claim 9, further comprising a memory module comprising one of a volatile memory, and a nonvolatile memory.

12. The optoelectronic assembly as recited in claim 10, wherein the identified corresponding optical signal wavelength for each of the one or more time intervals is stored in the memory module.

13. The optoelectronic assembly as recited in claim 9, wherein the appropriate range of a target wavelength is within 100 picometers of the target wavelength.

14. The optoelectronic assembly as recited in claim 9, further comprising a wave meter for measuring an optical signal wavelength that passes through the at least one of the one or more optical subassemblies.

15. The optoelectronic assembly as recited in claim 14, wherein the microprocessor identifies a corresponding optical signal wavelength for each of the one or more time intervals based on a signal received from the wave meter for measuring an optical signal.

16. A method for adjusting an output wavelength of an optical transceiver, the method comprising:

identifying a first time interval for a laser included in an optical transceiver;

identifying a first wavelength output by the laser during the first time interval;

identifying a second time interval for the laser;

identifying a second wavelength output by the laser during the second time interval;

determining an average wavelength shift using the first wavelength and the second wavelength over a period of time between the first time interval and the second time interval; and

adjusting a temperature of the laser based on the average wavelength shift to adjust an output wavelength of the laser such that the output wavelength is within a particular range of a target wavelength.

17. A method as defined in claim 16, wherein identifying a first wavelength output by the laser during the first time interval further comprises obtaining sample data that includes a wavelength over the first time interval.

18. A method as defined in claim 16, wherein identifying a second wavelength output by the laser during the second time interval further comprises obtaining sample data that includes a wavelength over the second time interval.

19. A method as defined in claim 16, wherein the first time interval is a first specified period of time and wherein the second time interval is a second specified period of time.

20. A method as defined in claim 16, wherein adjusting a temperature of the laser based on the average wavelength shift further comprises accessing a control value to determine a particular temperature to which the laser is adjusted.